California Bay Delta Overview

June 21, 2018

The Basics: California Water

CA's Federal and State (CVP & SWP) Water Infrastructure alone includes:

- 54 dams & reservoirs (22 MAF)
- 1200 miles of canals

Local – examples

- EBMUD – Mokelumne Aqueduct
- SFPUC – Hetch Hetchy Aqueduct
- Santa Clara Valley Water District

Why is the Delta Important?

- 2/3 of Californians rely on Delta Water
- Irrigation for 45% of the nation's fruits and vegetables
- Largest West Coast Estuary
- Habitat for 700 Species, several listed under the ESA
- 2 ports, 3 railroads, other infrastructure
- Recreation

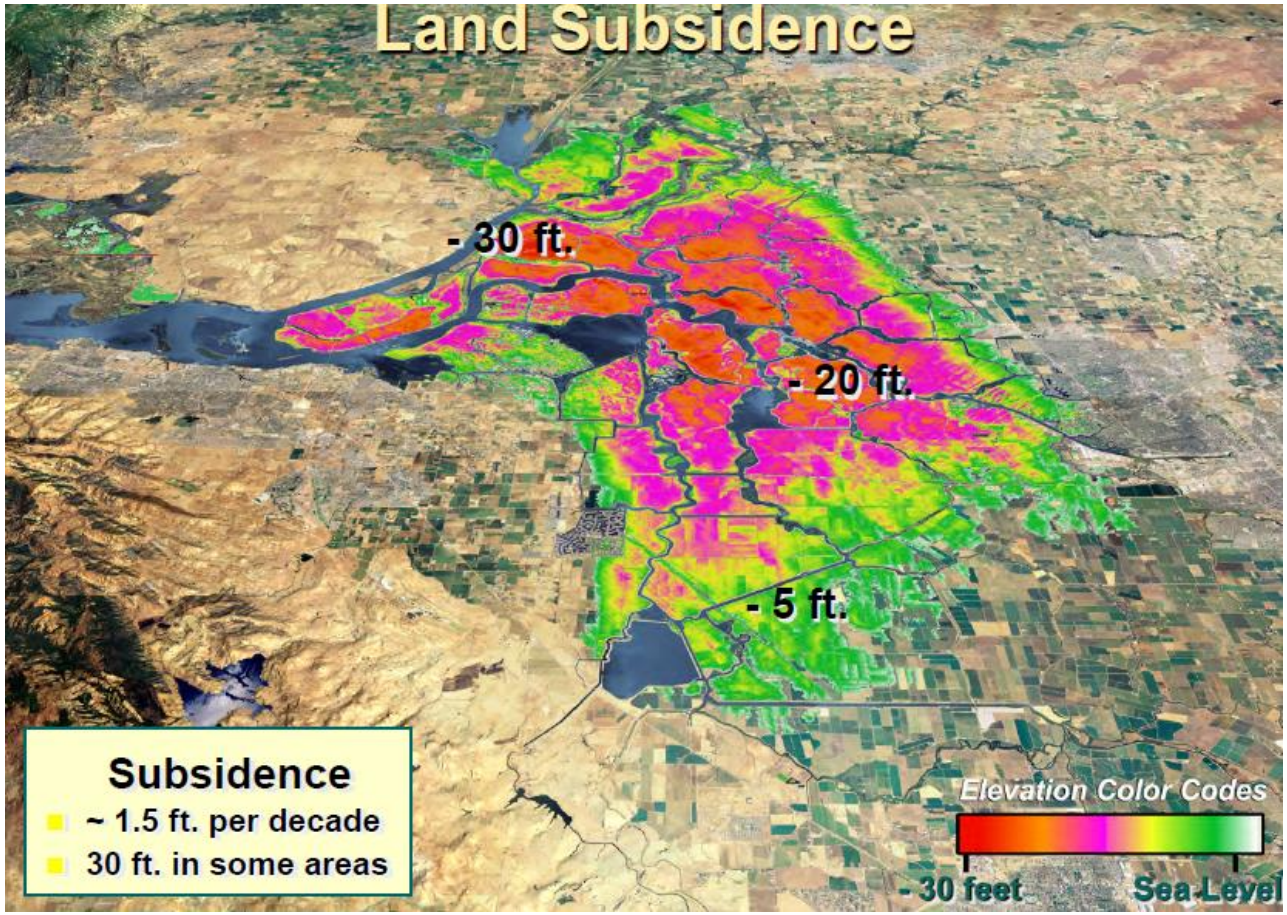
3

Designated Uses at Stake

- Agriculture – In Delta and broader
- Drinking Water
- Aquatic Life
  - Fisheries – Commercial & Recreational
  - Waterfowl
- Recreation

Delta Hazards

- Land subsidence
- Earthquakes
- Sea Level Rise, Less Snowpack & Extreme Storms
- Wave action
- Gophers
- Levee collapse means salt water for S. CA. & Ag Lands

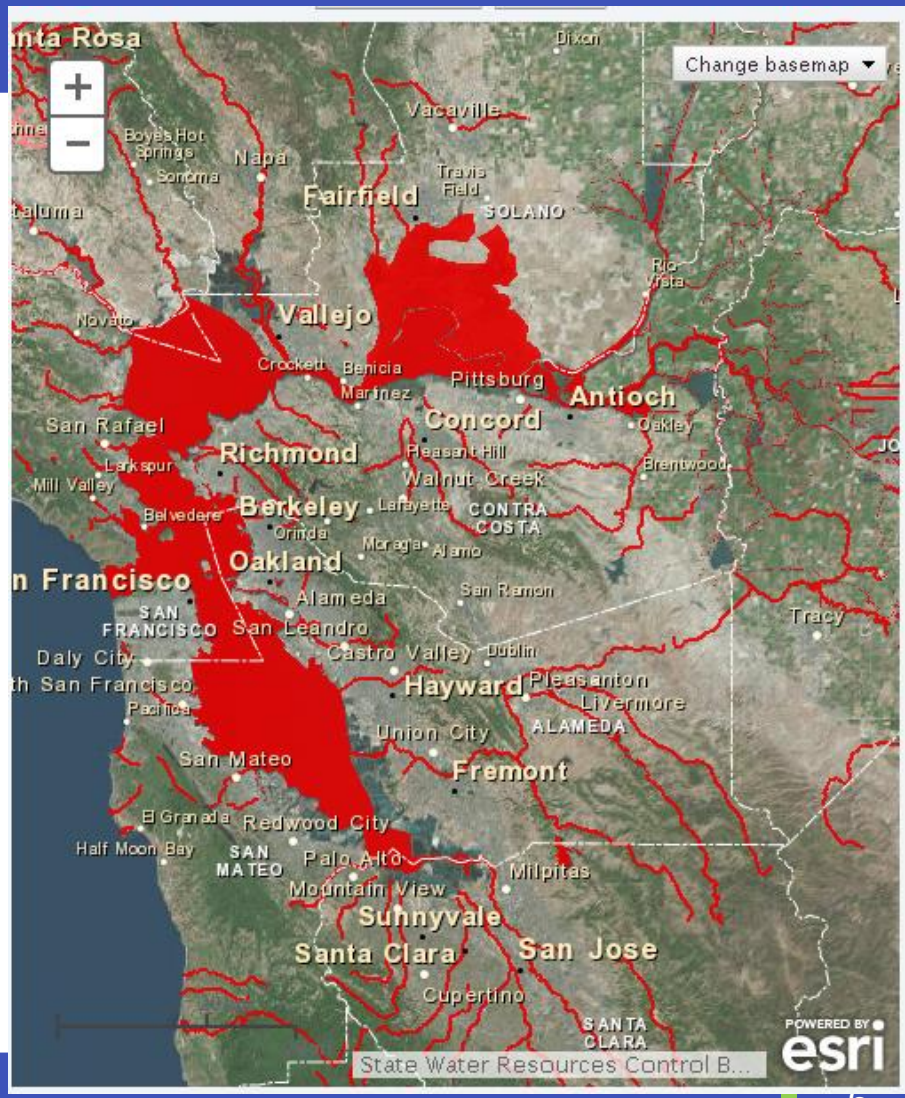


Impaired Waterways

Waterways in the SF Bay and Delta are impaired for:

- Pesticide-caused aquatic toxicity
- Low dissolved oxygen/nutrient enrichment
- Metals – selenium & mercury
- Salinity
- Sediment
- Pathogens
- Invasive species
- Tributaries: temperature

Emerging Issue: Harmful Algal Blooms



Invasive Species

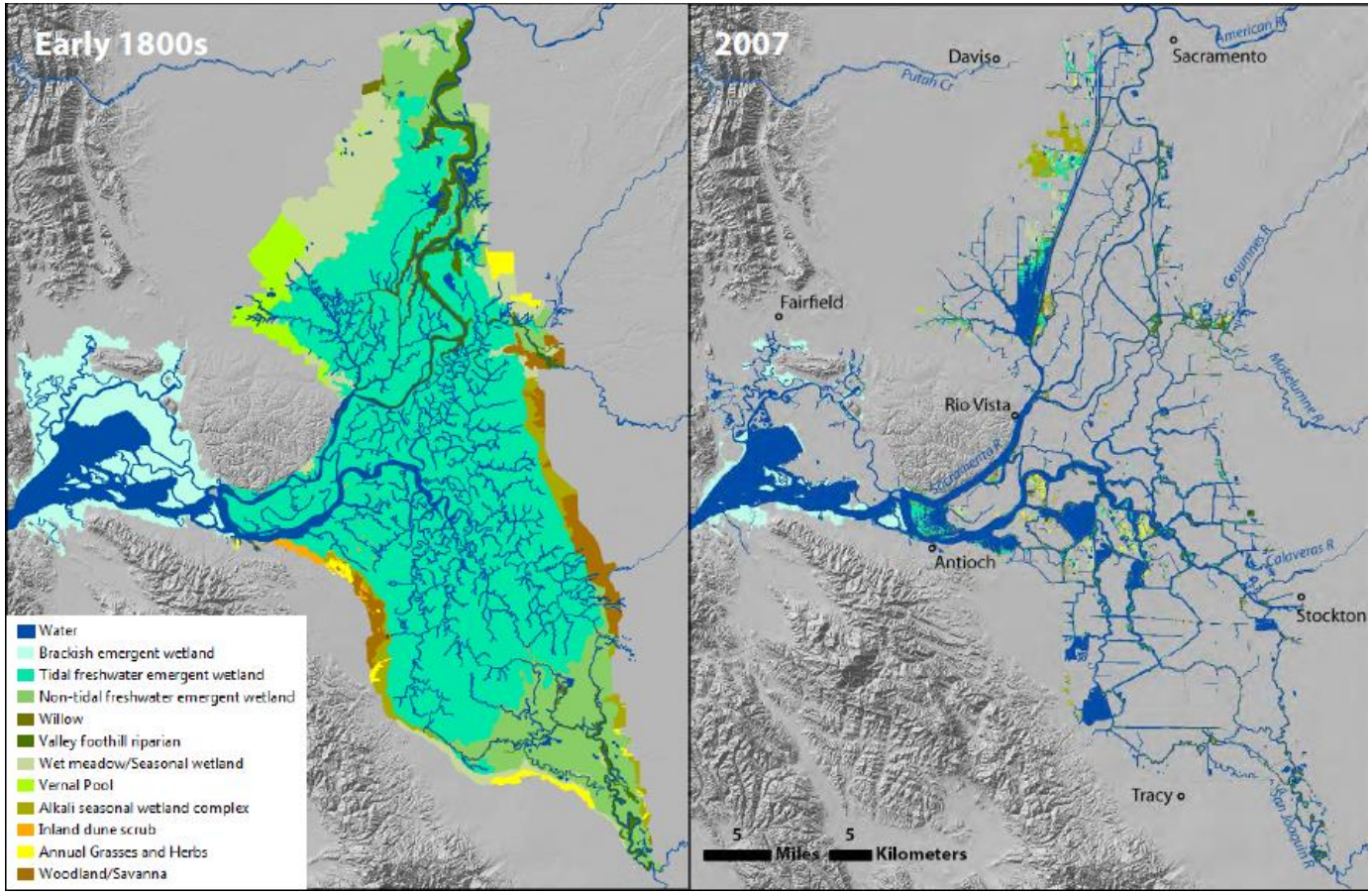
- 185 alien aquatic and plant species in the Delta
- Of particular note: Striped Bass, Asian clams & aquatic weeds

Picture: Mechanical harvesting of water hyacinth at the Stockton Yacht Club, 2014.

Photocredit: http://baynature.org/article/water-hyacinth-thrives-drought-stricken-delta/

Habitat Loss

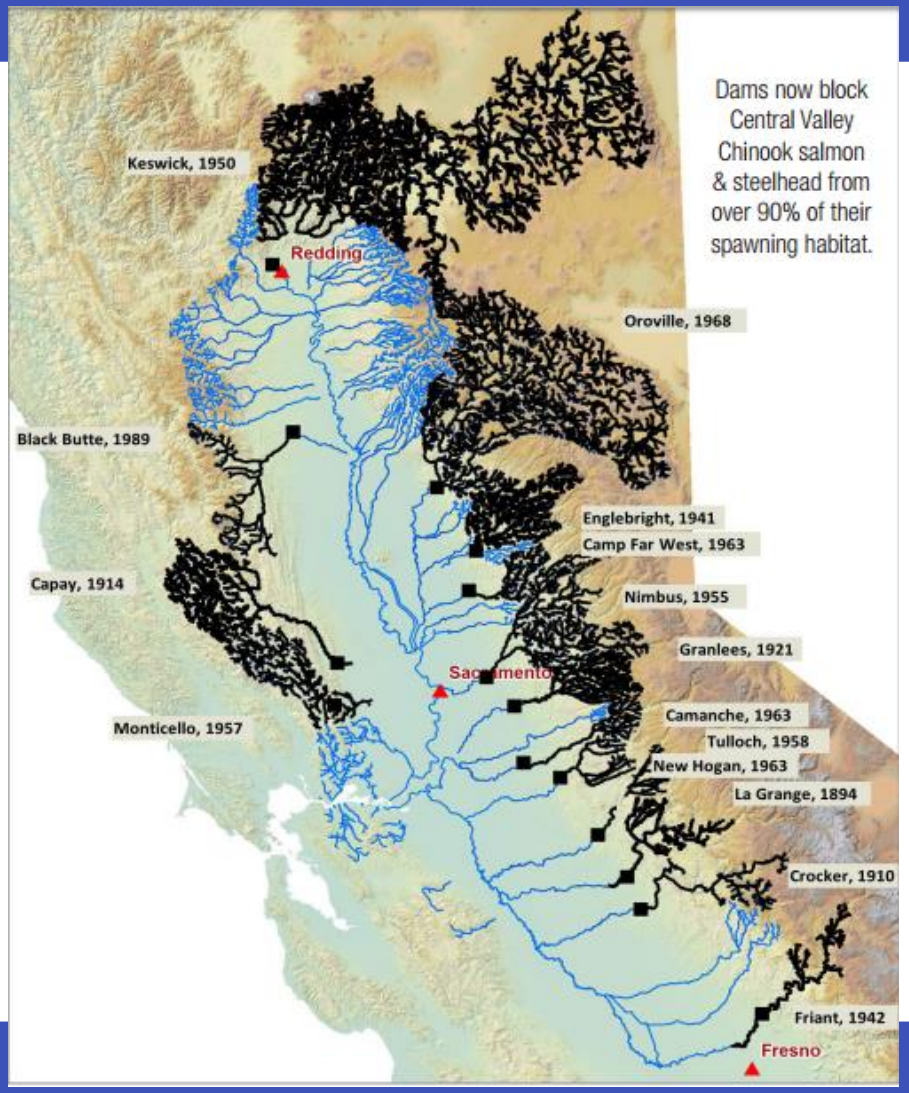
95% of the tidal wetlands in the Bay Delta have been leveed and/or filled



Source: SFEI 3/27/12 Presentation at LSZ Workshop available at http://www.epa.gov/sfbay-delta/pdfs/hist-estuarine-gradient-epa-grossinger.pdf

Upstream Habitat Loss

Dams now block migratory fish species from over 90% of their spawning habitat.



Endangered Species

- Winter Run Chinook Salmon
- Spring Run Salmon
- Central Valley Steelhead
- Green Sturgeon
- Delta Smelt

Delta Smelt Juveniles

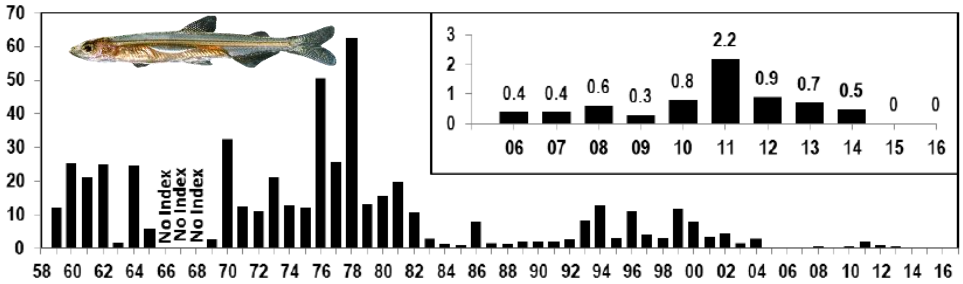


Figure 1. Summer Townet Survey annual abundance indices 1959-2016 with inset showing indices from 2006 to 2016.

- Close to zero Delta smelt juvenile index for a decade. Zero last 2 years.

Multiple Stressors, Acting in Concert

- Habitat Modification
- Flow Regime
- Entrainment at the Pumps
- Contaminants
- Invasive Species

(Taken from EPA's Action Plan and Related Material, 2012)

WaterFix (aka the Tunnels)

EPA's Upcoming Roles

- Review of NEPA documents for WaterFix
- Review of State Water Board's revised water quality standards

EPA's 309 Review of WaterFix

NEPA Actions

- DEIS Comment Letter August 2014
- SDEIS Rating Letter October 2015
- FEIS Letter Jan. 2017

Ex. (b)(5): Internal Deliberative

Water Quality Standards (CWA 303) Overview

- Water Quality Standards (WQS) include (a) designated uses, (b) water quality criteria (numeric or narrative) to protect those designated uses, and (c) antidegradation requirements.

- States are primarily responsible for setting WQS. EPA has an oversight role, and MUST review and approve or disapprove any "new or revised" WQS.

- EPA required to consult with Services (ESA Section 7) for standards actions.

Water Quality Standards Updates

- California (State Water Board) is updating Water Quality Standards in the Bay-Delta; Board has stated that existing standards are not protective of aquatic life
- These WQS are contained in a special purpose Water Quality Control Plan (WQCP) for the Bay and Delta
- Phase I – South Delta & San Joaquin River and its tributaries
- Phase II – Sacramento-San Joaquin Delta

Phase I: Water Quality Standards Updates

Phase II WQS Updates

Ex. (b)(5): Internal Deliberative